

BRISTLY FIDDLENECK AND MENZIES' FIDDLENECK

Amsinckia tessellata A. Gray &

A. menziesii (Lehm.) A. Nelson & J.F. Macbr.

Plant Symbols = AMTE3 & AMME

Alternative Names

Common Names: devil's lettuce, rough fiddleneck

Description

General: Bristly fiddleneck and Menzies' fiddleneck are native annual forbs in the borage family (Boraginaceae). The two species are similar in appearance and distribution and are treated here jointly. Plants are 30 to 60 cm (12 to 24 in) tall with flowers arranged in a coiled scorpioid cyme common to the Boraginaceae. The leaves and stems are covered with bristly to finely appressed hairs. The flowers are tubular with 5 lobes. Bristly fiddleneck flowers are yellow-orange and larger (7 to 12 mm long) and exserted from the calyx, while Menzies' fiddleneck flowers are pale yellow, smaller, 4 to 7 mm long, and not much, if at all, exserted from the calyx (Cronquist et al., 1984). The fruit and seeds, botanically referred to as a schizocarp of four mericarps, but commonly called nutlets, are rough and bumpy (tessellate); nutlets of Menzies' fiddleneck are keeled with few coarse bumps (Ray and Chisaki, 1957; Welsh et al., 2003). Bristly fiddleneck is most accurately separated from Menzies' fiddleneck by the presence of two or more fused calyx lobes giving the appearance of 2 to 4 sepals compared to five in the other species. Bristly fiddleneck has approximately 542,000 to 595,000 seeds/kg (246,000 to 270,000 seeds/lb) (Tilley et al., 2023). No seed weight data is available for Menzies' fiddleneck at the time of publication.

Distribution: Bristly fiddleneck is widespread, occurring in all western states from New Mexico north to Idaho and into British Columbia (USDA NRCS, 2023). Menzies' fiddleneck has been found primarily west of the Rockies, but plants have been documented in many U.S. states including states in the Midwest and East Coast. Menzies' fiddleneck is considered introduced in Alaska (USDA NRCS, 2023). For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Both species are associated with mixed warm desert shrub, creosote bush, sagebrush steppe, and pinyon-juniper communities in low valleys and foothills. Menzies' fiddleneck has also been collected in higher-elevation plant communities including mountain brush and aspen-fir communities (Welsh et al., 2003).

Adaptation

Bristly and Menzies' fiddlenecks are found in semi-arid rangeland plant communities receiving approximately 200 to 500+ mm (8 to 20+ in) mean annual precipitation. In drier areas, they are more commonly found occupying depressions and low areas that accumulate additional soil moisture.



Figure 1. Bristly fiddleneck flowers (above) and seed (below). Ruler marks are 1 mm. Photos by IDPMC.

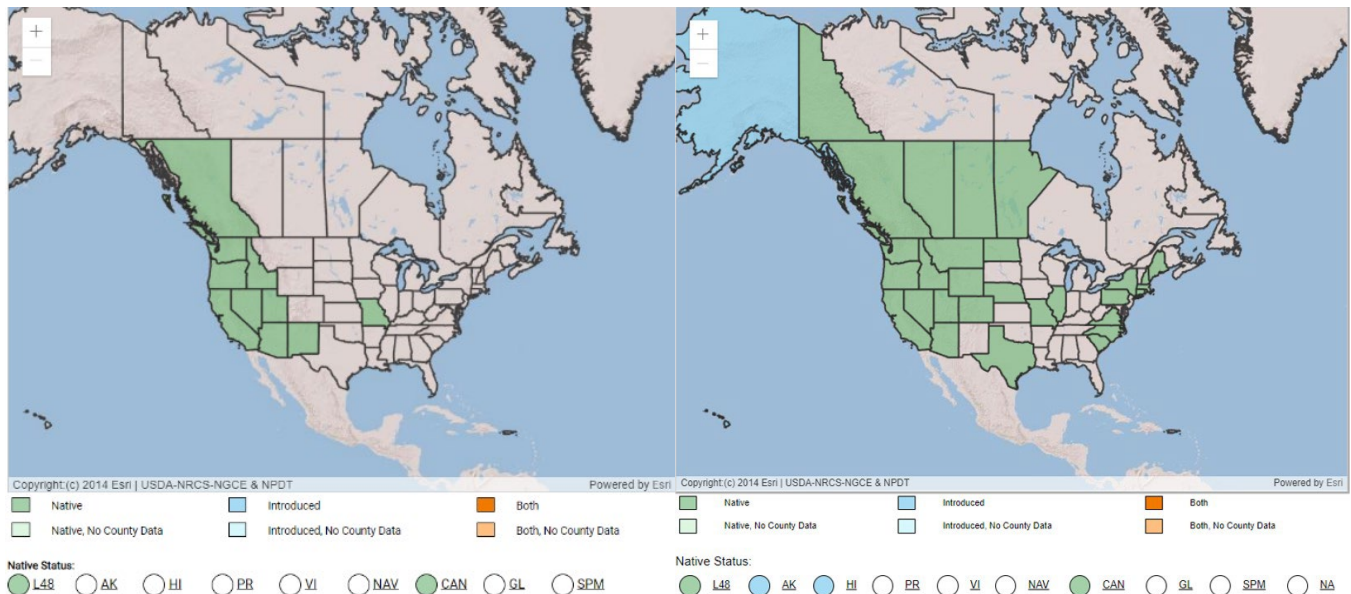


Figure 2. Distribution maps for bristly fiddleneck (left) and Menzies' fiddleneck (right). Courtesy of PLANTS Database (USDA-NRCS, 2023).

Uses

Fiddleneck species may be valuable for reclamation practices. Fiddleneck has been shown to significantly reduce the biomass of red brome (*Bromus rubens*), an invasive grass species, in a controlled greenhouse study (Abella et al., 2011), while Leger et al. (2014) showed bristly fiddleneck reduced cheatgrass (*Bromus tectorum*) biomass by 97% and reduced seed production significantly in greenhouse trials.

Fiddlenecks are primarily self-pollinated, but cross-pollination and even hybridization with other *Amsinckia* have been documented (Ray and Chisaki, 1957). Visitation to the flowers by the native bees *Anthophora neglecta*, *Melecta edwardsii*, and *Osmia* spp. has been observed (DiscoverLife, 2023), indicating these species may have value in pollinator habitat plantings.

Status

Please consult the PLANTS website (<http://plants.usda.gov/>) and your state's Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Planting Guidelines

Tilley et al. (2023) found no significant difference in germination in three different soil types (fine sandy loam, loam, and clay loam). However, they did find significantly fewer seeds emerged from depths of 1 and 2 cm compared to surface sown seeds. This may indicate a possible light requirement for germination agreeing with Forbis (2010), or it may be the result of low seedling vigor. For field and restoration purposes, surface or very shallow seeding depths are recommended.

Tilley et al. (2023) showed bristly fiddleneck germinates readily without pretreatment and that more seed germinated at 18 °C (64 °F) than at 22 °C (72 °F). They also showed that rapid, synchronous germination can be achieved by placing seeds in water aerated with an aquarium bubbler. Seed placed in an aerated water environment at 18 °C (64 °F) reached 100% germination within 7 days after initiation.

Bristly and Menzies' fiddlenecks are recommended for use at sites receiving 250 to 500 mm (10 to 20 in) mean annual precipitation in the Intermountain West (Ogle et al., 2023). This species can be broadcast, or drill seeded into a firm, weed-free seedbed to a depth of 0 to 6 mm (0 to ¼ in). To achieve a desired 25 to 30 seeds/ft, the full stand seeding rate is 4.5 to 10 kg/ha (4 to 9 lb/ac). The actual applied rate should be adjusted to match the desired percentage of the species in the mix. Fall, dormant seedings are recommended for most rangeland applications (Ogle et al., 2023); however, as fiddlenecks show no seed dormancy issues, establishment from spring and irrigated seedings are possible.

Management

Bristly and Menzies' fiddleneck are early seral colonizers. They are typically abundant on disturbed sites for the first few years following disturbance and then reduce in density making way for later seral, longer-lived species. Occasionally these species can form persistent stands, especially under management where succession is interrupted.

Pests and Potential Problems

Fiddleneck species are known to cause disease in horses, with problems associated with hepatic fibrosis (Burrows and Tyrl, 2001). The disease has also been noted in pigs and cattle with feed contaminated by fiddleneck nutlets or screenings being the most common cause. There are no known pests associated with these species.

Environmental Concerns

Fiddlenecks are native species and are commonly found in ruderal disturbed sites. While being associated with disturbance and poor grazing management, they can be considered weedy or invasive (Whitson et al., 1996).

Seed and Plant Production

Tilley et al. (2023) recommend wearing protective gear to minimize or prevent eye, skin, and inhalation hazards from fiddleneck bristles. Seed can be collected by clipping stems just below the inflorescence or using a racquet and hopper. Racquet and hopper methods allow for multiple harvests and require less hands-on removal of stems. Additionally, racquet harvesting does not create as much inert biomass from stems and leaves as the clipping method. Collected material should be stored in paper sacks or laid out on a shop floor on butcher paper and allowed to dry from two to several weeks in a well-ventilated room.

Fiddleneck seed cleaning requires brushing, milling, or other methods to dislodge seed from the flowers, which results in airborne irritating bristles. Paper bags containing the stem clipping inflorescences can be placed in a large, galvanized tub or a large cardboard box and repeatedly stepped on to break stems and dislodge seed. Crushed material can then be hand-screened to remove larger stem and leaf pieces using a 6.3 or 13 mm (0.25 or 0.5 in) screen. Material collected using a racquet and hopper does not contain stem material and does not need to be crushed or pre-screened (Tilley et al., 2023).

After threshing, Tilley et al. (2023) separated the seed from inert material using a screen cleaner with a 2.1 mm (0.08 in) upper screen to remove larger inert material and a 6x24 bottom screen for smaller matter. An airflow column was also used to remove dust and unfilled, light seed.

Cultivars, Improved, and Selected Materials (and area of origin)

Fiddleneck seed is currently difficult to obtain on the commercial market and wildland collection is often the only means of obtaining seed. Seed should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension, or local USDA NRCS office for recommendations on adapted cultivars for use in your area.

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Figure 3. Harvesting wildland fiddleneck with a racquet and hopper while wearing protective clothing. Photo by IDPMC.

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Citation

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